

# Motor Vehicle Crash Risk Among Adolescents and Young Adults with Attention-Deficit/Hyperactivity Disorder.

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## Abstract

### IMPORTANCE:

Attention-deficit/hyperactivity disorder (ADHD) often persists into adolescence, when motor vehicle crash risk peaks. We know little about when adolescents with ADHD get licensed and, once they do, the extent to which they have increased crash risk compared with adolescents without ADHD.

### OBJECTIVES:

To examine the association between ADHD and both driver licensing and crash involvement and whether it varies by sex, licensing age, and/or being prescribed ADHD medication at licensure.

### DESIGN, SETTING, AND PARTICIPANTS:

This retrospective cohort study was conducted at 6 primary care practices of the Children's Hospital of Philadelphia, a large pediatric health care network in southeastern Pennsylvania and southern New Jersey. Using electronic health records, we defined a cohort of 2479 adolescents and young adults with ADHD and 15 865 without ADHD who were (1) born from 1987 to 1997; (2) residents of New Jersey and patients at 1 of 6 New Jersey primary care practices at age 12 years or older; and (3) age-eligible to obtain a driver's license from 2004 through 2014. Electronic health records data were then linked with New Jersey's statewide driver licensing and crash databases for 2004 through 2014.

### MAIN OUTCOMES AND MEASURES:

Acquisition of a driver's license and first involvement as a driver in a police-reported crash. Survival analysis was used to estimate adjusted hazard ratios for licensing and crash outcomes through age 25 years.

### RESULTS:

The median age of individuals at the end of the study was 22.2 years (interquartile range, 19.7-24.8). Compared with individuals without ADHD, the licensing probability of individuals with ADHD 6 months after eligibility was 35% lower (for males: adjusted hazard ratio, 0.65; 95% CI, 0.61-0.70; females: adjusted hazard ratio, 0.64; 95% CI, 0.58-0.70). Among individuals with a driver's license, 764 of 1785 with ADHD (42.8%) and 4715 of 13 221 without ADHD (35.7%) crashed during the study period. The adjusted risk for first crash among licensed drivers with ADHD was 1.36 times higher than for those without ADHD (95% CI, 1.25-1.48) and did not vary by sex, licensing age, or over time. Only 129 individuals with ADHD (12.1%) were prescribed medication in the 30 days before licensure.

### CONCLUSIONS AND RELEVANCE:

Adolescents with ADHD get licensed less often and at an older age. Once licensed, this cohort has a greater risk of crashing. Additional research is needed to understand the specific mechanisms by which ADHD influences crash risk.